

Claims

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1. Silicon nitride materials containing sintering aids and SiO_2 , characterized in that the molar ratio of the silicon dioxide in the grain boundary phase to the sintering additives including SiO_2 in the grain boundary phase is $>60\%$ and the oxide nitride content $<1\%$.
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2. Process for producing silicon nitride materials according to Claim 1, characterized in that, either alone or in combination,
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- a) the Si_3N_4 powder used, either alone or together with the sintering aids, is thermally oxidized,
- b) the Si_3N_4 powder, either alone or together with the sintering aids and, if desired, further additives, is tribooxidized during milling and/or
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- c) the Si_3N_4 powder is admixed with sintering aids or with SiO_2 or at least one SiO_2 -forming component either before or during milling.
3. Use of the silicon nitride materials according to Claim 1 in the construction of machinery and apparatus, in particular in bearings.

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